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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/661,300 | 09/12/2003 | Robert Louis Cupo | 24-5-9-21 | 7453 |
| 7590 Ryan, Mason & Lewis, LLP Suite 205 1300 Post Road Fairfield, CT 06824 | | | EXAMINER CHANG, RICHARD | |
| | | | ART UNIT 2616 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/661,300

Applicant(s)

CUPO ET AL.

Examiner

Richard Chang

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2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/12/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 5-6 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5-6, the preambles of the claims indicate that these are method type claims but the bodies of these claims declare that these are apparatus type claims, which contradicts each other.

For further examination, the examiner assumes that these are method claims only.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 5,889,759 ("McGibney") in view of US patent No. in view of US patent No. 5,596,582 B1 ("Sato et al.") and further in view of US patent No. 6,693,958 B1 ("Wang et al.").

Regarding claims 1 and 5, McGibney teaches a method and system for synchronizing interleaving blocks in an OFDM communication system, the method comprising the steps of

monitoring each received frame for a predefined synchronizing pattern (as to synchronize to a block with a known data pattern as synchronization pattern),

entering a synchronization state upon detecting the predefined synchronizing pattern (generally within a first signal acquisition state) (See Fig. 5, Col. 5, line 64 to Col. 6, line 11).

McGibney teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

"wherein a guard period separates any two adjacent symbols".

Sato et al. teaches a general OFDM method with synchronization pattern detection wherein it is common practice in OFDM system that a guard interval with a cyclically used waveform of a effective symbol interval separates any two adjacent symbol intervals to reduce the symbol interferences (See Fig. 2, Col. 5, lines 42-57).

At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to combine Sato et al. with McGibney in order to obtain a method and system for synchronizing interleaving blocks in an OFDM communication system and to take advantage of a guard interval with a cyclically used waveform of a effective symbol interval separates any two adjacent symbol intervals.

The motivation to do so would have been to to reduce the symbol interferences by a guard interval with a cyclically used waveform of a effective symbol interval

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separates any two adjacent symbol intervals, as suggested by Sato et al. in Col. 5, lines 42-57.

McGibney and Sato et al. teach substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

“continuously monitoring each received frame for the synchronizing pattern at periodic frame intervals, and returning to the monitoring step if the synchronizing pattern is not detected at the periodic frame interval for a predefined number of blocks”.

Wang et al. teaches a similar synchronization process for the forward error correction decoding wherein it is a common practice of synchronization process to continuously (repeatedly) monitor (in an acquisition state) each received frame for the synchronizing pattern (fixed known sync pattern) at periodic frame intervals (covering a sync interval), and returning to the monitoring step (back to acquisition state) if the synchronizing pattern is not detected at the periodic frame interval (a sync interval) for a predefined number of symbol blocks (See Col. 8, lines 18-67).

At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to combine Wang et al. with McGibney and Sato et al. in order to obtain a method and system for synchronizing interleaving blocks in an OFDM communication system and to take advantage of a common practice of synchronization process to repeatedly search for the synchronizing pattern at a sync interval, and back to acquisition state if the synchronizing pattern is not detected at the sync interval for a predefined number of symbol blocks.

The motivation to do so would have been to repeatedly search for the synchronizing pattern at a sync interval, and back to acquisition state if the synchronizing pattern is not detected at the sync interval for a predefined number of symbol blocks to achieve convergence after signal acquisition, as suggested by Wang et al. in Col. 8, lines 18-67.

Regarding claims 3 and 6, Sato et al. further teaches that returning to the monitoring step if the synchronizing pattern is detected at an unexpected location for a predefined number of blocks (See Fig. 11, Col. 10, lines 45-64).

Regarding claims 2 and 4, McGibney further teaches that the predefined synchronization condition is the detection of a predefined cyclic prefix pattern (See Fig. 5, Col. 5, line 64 to Col. 6, line 11).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RKC
rkc

Richard Chang
Patent Examiner
Art Unit 2616

Wing Chan
5/29/07
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SUPERVISORY PATENT EXAMINER